Manchester.

Literary and Philosophical Society, November 4.—Prof. F. E. Weiss in the chair.—Prof. W. H. **Lang**: One of the simplest land-plants, *Hornea Lignieri.* The further results obtained by Dr. R. Kidston and Prof. W. H. Lang in the study of the silicified Old Red Sandstone plants at Rhynie were described Two species of Rhynia are now distinguished, *R. Gwynne-Vaughani* and *R. major.* The latter is the larger in all its parts, and differs in some details of anatomy. These plants are rootless and leafless, and consist of a subterranean rhizome with rhizoids, dichotomously branched cylindrical aerial stems, and large terminal sporangia. Another equally simple plant, associated with these in the family Rhyniaceæ, has been discovered and investigated. This, *Hornea Lignieri,* consisted of rhizomes, branched stems, and terminal sporangia, without roots or leaves. The rhizomes were lobed parenchymatous structures, suggesting comparison with the protocorm of certain species of Lycopodium. The stems branched dichotomously, and had a simple central cylinder, cortex, and epidermis. No stomata have yet been discovered in this plant, as they have in Rhynia, but its organisation suggests a similar land-habit. The sporangia are remarkable in the presence of a columella-like central region, making the spore cavity dome-shaped. These simple vascular Cryptogams suggest comparisons with Bryophyta and Algæ.

Paris.

Academy of Sciences, November 10.—M. Léon Guignard in the chair.—M. **Hamy**: A case of diffraction of images of circular stars.—H. **Douvillé**: The geology of Mont Blanc.—A. **Blondel**: A solution of heterochromatic photometry permitting of a physical measurement of the luminous intensity. The instrument proposed is based on the inversion of a spectrograph, the slit being replaced by a thermocouple.—L. **Cuénot**: The coaptation of the anterior femurs and of the head in the Phasmidæ.—E. **Bompiani**: Surfaces of translation and minimum surfaces in curved space.—B. **Baillaud**: Return of the Finlay comet; re-found by M. Schaumasse; compared by M. Fayet with the recent Sasaki comet. The comet discovered on October 25 by Sasaki is considered by M. Fayet, director of the Nice Observatory, as identical with the periodic Finlay comet recently found by Schaumasse.—A. **Véronnet**: Time and temperature of formation of a star. The author concludes that the sun originally could not have had a temperature more than three times its present temperature, or a radius more than double the present one. Even in this case the time of formation would have to be less than a million years. The physical conditions have never been greatly different from the existing ones.—M. **Girousse**: The calculation of the current thrown into the ground by the rails of electric tramways.—H. **Colin** and Mlle. A. **Chaudin**: The diastatic inversion of saccharose: influence of the products of the reaction on the velocity of hydrolysis. In all the cases studied the velocity of hydrolysis is a linear function of the fluidity of the solutions. The reduced velocity of hydrolysis of sugar by sucrase caused by the presence of lævulose or glucose must be attributed to the purely physical effect of increased viscosity.—L. **Chelle**: The detection of hydrocyanic acid in a case of poisoning. Its *post-mortem* transformation into thiocyanic acid. It is well recognised that hydrocyanic acid apparently disappears from the body at a certain period after death. It is now shown that this acid is not destroyed or transformed in an irreversible manner, but takes up sulphur and is converted into thiocyanic acid. The latter resists the action of putrefaction, and can be extracted from the tissues and reconverted by oxidation into hydrocyanic acid.—R. **Levaillant** and L. J. **Simon**: The action of methyl alcohol on sulphuryl chloride and on methyl chlorosulphonate.—J. **Barthoux**: Relation of volcanic eruptions and marine transgressions in Egypt.—A. **Briquet**. The age of the old littoral lines of the Bas-Champs of Picardy.—G. **Mouret**: The prolongation to the north-west of the zone of crushed rocks recognised between Asprières (Aveyron) and Fromental (Haute-Vienne).—Ph. **Glangeaud**: The plateau of Millevaches, its cycles of erosion, its ancient glaciers and peat-bogs.—J. **de Lapparent**: The conglomerates of the valley of la Bruche and the character of the breccias of sedimentary origin.—P. **Garrigou-Lagrange**: The kinematography of atmospheric movements and weather prediction.—C. E. **Brazier**: Relations of wind with gradient in the lower layers of the atmosphere.—A. **Goris** and Ch. **Vischniac**: Characters and composition of primeverose. The new sugar was isolated from two glucosides extracted from *Primula officinalis.* Its physical and chemical properties are given. Glucose and xylose are the products of hydrolysis, and primeverose is the first known biose of this composition.—G. **Tanret**: The *miellée* of the poplar. Melezitose has been isolated from the sugary deposit (*miellée*) found in warm seasons on the upper faces of the leaves of certain species.—J. **Amar**: Mechanism of the cough in respiratory diseases.—J. **Nageotte**: The formation of conjunctive fibres in a non-living medium at the expense of dead protoplasm.—MM. G. **Bertrand**, **Brocq-Rousseu**, and **Dassonville**: Destruction of *Sitotroga ceralella* by chloropicrin.

BOOKS RECEIVED.

Human Personality and its Survival of Bodily Death. By Frederic W. H. Myers. Edited and abridged by S. B. and L. H. M. Pp. xiii+307. (London: Longmans, Green, and Co.) 6*s.* 6*d.* net.

South: The Story of Shackleton's Last Expedition, 1914–17. By Sir Ernest Shackleton. Pp. xxi+376. (London: William Heinemann.) 25*s.* net.

Identification of the Economic Woods of the United States: Including a Discussion of the Structural and Physical Properties of Wood. By Prof. Samuel J. Record. Second edition, revised and enlarged. Pp. ix+157+vi plates. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 8*s.* 6*d.* net.

The Theory and Practice of Working Plans (Forest Organization). By Prof. A. B. Recknagel. Second edition, thoroughly revised. Pp. xiv+265+vi plates. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 9*s.* net.

Spiritual Pluralism and Recent Philosophy. By C. A. Richardson. Pp. xxi+335. (Cambridge: At the University Press.) 14*s.* net.

The Principles of Electrical Engineering and their Application. By Prof. Gisbert Kapp. Vol. ii.: Application. Pp. viii+388. (London: Edward Arnold.) 18*s.* net.

Asbestos and the Asbestos Industry: The World's Most Wonderful Mineral and Other Fireproof Materials. By A. Leonard Summers. (Pitman's Common Commodities and Industries.) Pp. ix+107. (London: Sir Isaac Pitman and Sons, Ltd.) 2*s.* 6*d.* net.

Meteorology for All: Being Some Weather Problems Explained. By Donald W. Horner. With an introduction by C. S. Salter. Pp. xvi+184+vii plates. (London: Witherby and Co.) 6*s.* net.

Ions, Electrons, and Ionizing Radiations. By Dr. James Arnold Crowther. Pp. xii+276. (London: Edward Arnold.) 12*s.* 6*d.* net.

Psychology and the Day's Work: A Study in the

© 1919 Nature Publishing Group

Application of Psychology to Daily Life. By Prof. Edgar James Swift. Pp. ix+388. (London: George Allen and Unwin, Ltd.) 10*s*. 6*d*. net.

Notions Fondamentales de Chimie Organique. By Prof. Charles Moureu. Sixième édition. Pp. vii+552. (Paris: Gauthier-Villars et Cie.) 16 francs.

Agriculture and the Farming Business. By O. H. Benson and George Herbert Betts. Pp. xvii+778. (London: Kegan Paul, Trench, Trübner, and Co., Ltd.) 10*s*. 6*d*. net.

Introduction to Physical Chemistry. By Prof. James Walker. Eighth edition. Pp. xiii+433. (London: Macmillan and Co., Ltd.) 16*s*. net.

The Outline of History. By H. G. Wells. Part i. Pp. 32+plates. (London: George Newnes, Ltd.) 1*s*. 2*d*. net

Examples in Electrical Engineering. By J. F. Gill and F. J. Teago. Pp. 173. (London: Edward Arnold.) 7*s*. 6*d*. net.

Memoirs of the Geological Survey: England and Wales. Explanation of Sheet 154. The Geology of the Country around Lichfield, including the Northern Parts of the South Staffordshire and Warwickshire Coalfields. By G. Barrow and others. With contributions by J. B. Hill and others. Pp. viii+302. (Southampton: Ordnance Survey Office; London: E. Stanford, Ltd.) 9*s*. net.

DIARY OF SOCIETIES.

THURSDAY, DECEMBER 4.

ROYAL SOCIETY, at 4.30.—A. M. Williams: (1) The Adsorption of Gases at Low and Moderate Concentrations. Part I: Deduction of the Theoretical Adsorption Isotere and Isotherm. Part II: Experimental Verification of the Form of the Theoretical Isoteres and Isotherms. (2) The Adsorption of Gases at Low and Moderate Concentrations. Part III: Experimental Verification of the Constant in the Theoretical Adsorption Isotere.—T. R. Merton: (1) The Secondary Spectrum of Hydrogen. (2) The Spectra of Isotopes.—E. F. Armstrong and T. P. Hilditch: A Study of Catalytic Actions at Solid Surfaces, Part II.—F. Horton and Ann C. Davies: An Experimental Determination of the Critical Electron Velocities for the Production of Radiation and Ionisation on Collision with Argon Atoms.

ROYAL SOCIETY OF MEDICINE (Balneology and Climatology Section), at 5.30.—Dr. C. F. Sonntag: The History of Baths and Bathing in Britain before the Norman Conquest.

CHEMICAL SOCIETY, at 8.—H. Henstock: Di-phenanthryl.—B. D. Steele and H. G. Denham: A New Sulphuretted Hydrogen Generator.

ROYAL SOCIETY OF MEDICINE (Obstetrics and Gynæcology Section), at 8.—*Discussion*: On the Recently Published Report on the Teaching of Obstetrics and Gynæcology to Medical Students and Graduates in London. Dr. T. W. Eden will introduce the discussion, and a Criticism of the Report will be read by Dr. H. Spencer.

FRIDAY, DECEMBER 5.

ROYAL SOCIETY OF MEDICINE (Laryngology Section), at 4.

INSTITUTION OF ELECTRICAL ENGINEERS (Students' Meeting) (at the City and Guilds Technical College, Leonard Street, E.C. 2), at 7.—H. M. Barlow: Thermionic Magnifiers.

GEOLOGISTS' ASSOCIATION (at University College), at 7.30.—W. B. R. King: Geological Work on the Western Front.

TECHNICAL INSPECTION ASSOCIATION (at the Royal Society of Arts), at 7.30.—R. D. Summerfield and H. J. Davey: Inspection and Testing of Materials.

ROYAL SOCIETY OF MEDICINE (Anæsthetics Section), at 8.30.—Dr. C. H. Mott: Intratracheal Insufflation of Chloroform; a Report on 357 Cases.

MONDAY, DECEMBER 8.

VICTORIA INSTITUTE (at the Central Hall, Westminster), at 4.30.—A. W. Sutton: The Ruined Cities of Palestine, East and West of the Jordan.

ROYAL GEOGRAPHICAL SOCIETY (at Lowther Lodge, Kensington Gore, S.W. 7), at 5.—Lt.-Col. W. J. Johnston: The New Inch and Quarter-inch Maps of the Ordnance Survey.

BIOCHEMICAL SOCIETY (at the Lister Institute), at 5.30.—B. Moore, E. B. R. Prideaux, E. Whitley, and A. Webster: (1) Season Variations in Reaction of Sea Water Due to Photosynthesis; (2) Fixation of Atmospheric Nitrogen by Marine Algæ.—B. Moore and E. Whitley: Velocity of Photo-synthesis by Green, Brown, and Red Seaweeds Respectively in Light of Varying Intensity.—A. Slator: The Rate of Inactivation of Yeast-cells.—I. S. MacLean: Composition of Yeast Fat.—C. J. Martin: (1) Method of Preparation of Sörensen's Phosphate Solutions in Absence of Pure Salts. (2) Adjustment of Reaction of Media by the Use of α-Naphtholphthalein.—A. Harden and S. S. Zilva: Production of Water-soluble B by *S. ellipsoideus*.

SURVEYORS' INSTITUTION (Junior Meeting), at 7.

ROYAL SOCIETY OF ARTS, at 8.—Dr. J. T. Hewitt: Synthetic Drugs (Cantor Lecture).

INSTITUTION OF MECHANICAL ENGINEERS (Graduates' Association), at 8.—R. J. Glinn: Large Boiler Units.

TUESDAY, DECEMBER 9.

ROYAL SOCIETY OF ARTS (Colonial Section), at 4.30.—Sir Edward Davson: Problems of the West Indies.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—H. F. Farmer: Demonstration of the "Carbro" Process.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—J. H. Hutton: The Leopard Men of the Naga Hills.

WEDNESDAY, DECEMBER 10.

BRITISH PSYCHOLOGICAL SOCIETY (Education Section) (at the College of Preceptors).

ASSOCIATION OF ECONOMIC BIOLOGISTS (at Botanical Department, Imperial College of Science and Technology), at 11.30.—Annual General Meeting. Exhibitions and Communications.

CONJOINT BOARD OF SCIENTIFIC SOCIETIES (at the Royal Society), at 3.

ROYAL UNITED SERVICE INSTITUTION, at 3.—Rear-Admiral Sir W. E. Goodenough: Light Cruisers.

ROYAL SOCIETY OF ARTS, at 4.30.—Sir Oliver Lodge: Some Possible Sources of Energy (Trueman Wood Lecture).

ROYAL AERONAUTICAL SOCIETY (at the Royal Society of Arts), at 8.—J. D. North: Aircraft Undercarriages.

THURSDAY, DECEMBER 11.

ASSOCIATION OF ECONOMIC BIOLOGISTS (at Botanical Department, Imperial College of Science and Technology), at 10.30.—Discussion on the Integration of Mycological Research with Practice in Agriculture, Horticulture, and Forestry.—Sir A. D. Hall: The Administrative Problem.—Prof. V. H. Blackman: The Teaching Problem.—Dr. E. J. Russell: The Agricultural Problem.—F. J. Chittenden: The Horticultural Problem.—Prof. W. Somerville: The Forestry Problem.

ROYAL SOCIETY, at 4.30.—*Probable Papers*.—Col. C. F. U. Meek: A Further Study of Chromosome Dimensions.—J. M. H. Campbell, C. G. Douglas, and F. G. Hobson: The Respiratory Exchange of Man During and After Muscular Exercise.—Dr. A. D. Waller: The Energy Output of Dock Labourers during Heavy Work.—C. H. Usher: Histological Examination of an Adult Human Albino's Eyeball, with a Note on Mesoblastic Pigmentation in Fœtal Eyes.—J. Gray: The Relation of Spermatozoa to Certain Electrolytes, II.

LINNEAN SOCIETY, at 5.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Sir Charles A. Ballance: The Surgery of the Heart (Bradshaw Lecture).

INSTITUTION OF ELECTRICAL ENGINEERS (at the Institution of Civil Engineers), at 6.—Capt. J. M. Scott Maxwell: Scientific Management—A Solution of the "Capital and Labour" Problem.

OPTICAL SOCIETY, at 7.30.—Experimental and Conversational Evening.

INSTITUTION OF AUTOMOBILE ENGINEERS (Graduate Section) (28 Victoria Street), at 8.—Debate: Worm *v*. Bevel Drive.

ROYAL SOCIETY OF MEDICINE (Neurology Section), at 8.30.—Discussion: The Late Effects of Injuries to the Nervous System.

FRIDAY, DECEMBER 12.

ROYAL ASTRONOMICAL SOCIETY, at 5.—Consideration of the Theory of Relativity. Discussion to be opened by Prof. Eddington.

PHYSICAL SOCIETY OF LONDON, at 5.—Prof. W. M. Coleman: First Steps in the Experimental Analysis of a Galvanic Cell.—J. W. T. Walsh: Radiation from a Perfectly Diffusing Circular Disc.—Dr. N. W. McLachlan: A Comparative Method of Testing Thermionic Valves for Passing no Reverse Current at High Voltages.—Dr. A. O. Rankine: Recording and Reproducing Sounds by Means of Light.

MALACOLOGICAL SOCIETY OF LONDON (at the Linnean Society), at 6.

CONTENTS.

PAGE

The Nurture of Key Industries 349
The Dragon of Mythology 350
Eugenics. By **L. D.** 351
Our Bookshelf 352

Letters to the Editor:—

Progress of the Natural History Museum.—**Dr. S. F. Harmer, F.R.S.** 353
Gravitation and Light.—**Sir Oliver J. Lodge, F.R.S.** 354
The Displacement of Light Rays Passing near the Sun.—**Prof. Alexr. Anderson** 354
Einstein's Relativity Theory of Gravitation. I. By **E. Cunningham** 354
Discovery of a Minoan Palace at Malia, in Crete . 356
Notes 357

Our Astronomical Column:—

Heliocentric Grouping of Planets in December . . . 361
Comets 361
Fall of a Meteorite in America 361
Anniversary Meeting of the Royal Society . . . 361
The Hydro-electric Survey of India. By **Dr. Brysson Cunningham** 363
University and Educational Intelligence 364
Societies and Academies 365
Books Received 367
Diary of Societies 368

Editorial and Publishing Offices:
MACMILLAN AND CO., LTD.,
ST. MARTIN'S STREET, LONDON, W.C.2.

Advertisements and business letters to be addressed to the Publishers.

Editorial Communications to the Editor.
Telegraphic Address: PHUSIS, LONDON.
Telephone Number: GERRARD 8830.

© 1919 Nature Publishing Group